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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/037,337

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Richard L. Copeland

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06/01/2004

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EXAMINER

LEE, BENJAMIN C

ART UNIT

PAPER NUMBER

2632

DATE MAILED: 06/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/037,337

Applicant(s)

COPELAND ET AL.

Examiner

Benjamin C. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4 and 12-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4 is/are allowed.
- 6) ☒ Claim(s) 12-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response To Amendment

Claim Status

1. **Claims 4 and 12-32** are pending.

Claim Rejections - 35 USC § 103

2. **Claims 16-19** is rejected under 35 U.S.C. 103(a) as being unpatentable over Davies et al.

1) In considering claims 16-18, Davies et al. discloses:

--an antenna for use in an electronic article surveillance system (Figs. 5 & 8, and col. 1, lines 6-11), comprising: a core comprising a central member (54 of Fig. 5) disposed between a wrap-around member (53 in Fig. 5) having top and bottom portions (relative to the central member 54) that are of equal length and shorter than the central member.

While Davies et al. does not disclose the claimed first and second outer members, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that that wrap-around member 53 would have functioned the same as separate top and bottom members in an antenna such as taught by Davies et al. since the wrap-around member 53 is conceptually separate top and bottom members joined at the seam at the two side edges, and thus the antenna can alternatively be formed by two separate top and bottom members 53 sandwiching the central member 54 without unexpected result.

2) In considering claim 19, Davies et al. disclosed all of the claimed subject matter, except:

--the claimed about 30 cm for the first and second lengths for the outer members and about 50 cm for the third length for the central member.

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It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to choose various dimensions of the outer and central members in an antenna construction and housing such as taught by Davies et al., including about 30 cm for the first and second lengths for the outer members and about 50 cm for the third length for the central member, based on the particular antenna size and antenna housing design desired for specific application and application environment.

3. **Claims 12-15, 20-25 and 32** are rejected under 35 U.S.C. 103(a) as being unpatentable over Davies et al. in view of Yoshizawa et al. (US pat. #5,567,537).

1) In considering claim 23:

a) Davies et al. teaches that in electronic article surveillance systems (EAS) (col. 1, lines 6-11 and Fig. 8) solid cored coil antennas have advantages over air cored coil antennas such as lower overall size and considerably more confined magnetic flux (col. 1, line 12 to col. 2, line 6), and furthermore that such solid cored coil antennas can be used for interrogation as well as detection of EAS tags (col. 2, lines 50 & 62 and col. 5, lines 31-33), wherein specifically the antenna (Figs. 1, 5, 8) comprises a core (53 & 54 of Fig. 5) of elongate solid rectangular shape having first and second ends, the core is made of suitable materials of suitable effective relative magnetic permeability (col. 1, line 67 to col. 2, line 6 and disclosure corresponding to Fig. 5), and a coil winding of wire (51 of Fig. 5) disposed around at least a portion of the core (Fig. 5), said coil winding of wire insulated from said core (inherent in embodiment of Fig. 5), said core and coil winding being of a minimum size for generation of an electromagnetic field for interrogation and detection of EAS markers (col. 1, lines 53-54, wherein the antenna size is minimized as compared to an air core type coil antenna);

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b) Yoshizawa et al. teaches a solid cored coil antenna in an interrogation-response system using a core formed by a plurality of amorphous alloy ribbons insulated from each other and stacked to form a substantially elongated solid rectangular shape having first and second ends, with a coil winding of wire disposed around at least a portion of the core and insulated from the core, provides for an antenna of minimum size for generation of a given electromagnetic field having characteristics for effective interrogation as compared to convention coils (air-core type coils) (Figs. 1-3 and corresponding disclosure), and that such an antenna provides improved performance while minimizing size (Abstract, whereby such a solid cored coil antenna enables even smaller dimensions of the antenna for a particular performance rating than that provided by the Davies et al. core material according to col. 2, lines 4-6).

In view of the teachings by Davies et al. and Yoshizawa et al., it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use the specific type of core material and coil antenna construction such as taught by Yoshizawa et al. for implementing the interrogation/detection coil antenna of a system such as taught by Davies et al. in order to **provide the intended antenna function** (i.e. providing the intended EAS interrogation function) but at a minimized size (within the design constraint of still retaining the intended EAS interrogation function), wherein such minimized antenna size is desirable in various EAS applications by minimizing the physical presence, and thereby the associated physical and psychological intrusiveness and unsightliness of the system in typical application environments such as business establishments.

2) In considering claims 24-25, Davies et al. and Yoshizawa et al. made obvious all of the claimed subject matter as in claim 23, wherein:

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--while Davies et al. and Yoshizawa et al. did not specify the same core dimensions (about 75 cm long, about 2 cm wide) and the number (about 60) of ribbons and each of their thickness (about 23 microns), and the wire gauge (24-gauge) and number of turns (90) for the coil as claimed, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that the electromagnetic interrogation field generated from the interrogation antenna in a system such as taught by Davies et al and Yoshizawa et al. depends on a variety of parameters including the antenna driving current, the gauge, length and conductivity of the coil wire as well as the number of turns for the coil, and the magnetic characteristics of the core including specific composition, dimensions and size of the core, and furthermore the desired interrogation field depends on the intended/expected size and dimension of the interrogation zone as well as the response characteristics of the marker. Therefore, the core dimensions, the number of ribbons and each of their thickness, the wire gauge and number of turns of the antenna coil only account for some of the parameters for designing a particular intended application of a system such as taught by Davies et al. and Yoshizawa et al., and that such parameters can be chosen, including using the claimed parameter specification, in achieving the intended interrogation characteristics without unexpected results.

3) In considering claim 32, Davies et al. and Yoshizawa et al. made obvious all of the claimed subject matter as in claim 23, including:

--the claimed Q value of the antenna of less than or equal to about 20 at an EAS operating frequency (Fig. 3 of Yoshizawa et al., whereby a Q value of about 20 or less correspond to an interrogation frequency of about 50 kHz or less, which one skilled in the art at the time of the claimed invention would have readily recognized that operating frequency can be selected as the

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EAS operating frequency of choice based on factors such as frequencies already operating in the environment of application, FCC regulations, the type of marker used, user preference, etc.).

4) In considering claims 12-14, Davies et al. and Yoshizawa et al. made obvious all of the claimed subject matter as in the consideration of claim 23, including:

--the claimed core of stacked amorphous alloy ribbons includes a central member inserted at its center so that the stacked ribbons form first and second outer members that are of equal length but are shorter than the central member are met by the relationship between 54, 53 and 51 in Fig. 5 of Davies et al. as a specific housing structure for mounting to the antenna housing of Fig. 8 of Davies et al.

5) In considering claim 15, Davies et al. and Yoshizawa et al. made obvious all of the claimed subject matter as in claim 14, wherein:

It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to choose various dimensions of the outer and central members in an antenna construction and housing such as taught by Davies et al. and Yoshizawa et al., including about 30 Cm for the first and second lengths for the outer members and about 50 Cm for the third length for the central member, based on the particular antenna size and antenna housing design desired for specific application and application environment.

6) In considering claims 20-21, Davies et al. and Yoshizawa et al. made obvious all of the claimed subject matter as in the consideration of claim 23.

7) In considering claim 22, Davies et al. and Yoshizawa et al. made obvious all of the claimed subject matter as in claim 20, plus the consideration of claim 14.

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4. **Claims 26-29 and 31** are rejected under 35 U.S.C. 103(a) as being unpatentable over Davies et al. in view of Yoshizawa et al. and Balch et al. (US pat #6,118,378).

1) In considering claims 26-27, Davies et al. and Yoshizawa et al. made obvious all of the claimed subject matter as in claim 23, while:

--Balch et al. teaches the claimed electronic controller (88, 100) and switching transmitting/receiving arrangement operating in sequential pulsed mode (Figs. 3-4) as a known marker interrogation system using antennas for both transmitting and receiving (i.e. interrogation and detection).

Davies et al. and Yoshizawa et al. teaches a marker interrogation system in which an antenna is used for interrogation and detection of a tag, without further specifying the interrogation/detection circuitry including antenna control circuitry, while Balch et al. teaches using the claimed features in the control aspect of the interrogation/detection system. It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use the known control circuitry such as taught by Balch et al. for the complete implementation of a marker interrogation/detection system such as that taught by Davies et al. and Yoshizawa et al. without unexpected results.

4) In considering claims 28-29, Davies et al., Yoshizawa et al. and Balch et al. made obvious all of the claimed subject matter as in the consideration of claims 23 & 26, plus the plurality of antennas shown in Fig. 4 of Balch et al., and the claimed first and second antennas selected by the controller to operate in respective transmit only and receive only modes are met by the selective sequential operation description of Figs. 3-4 of Balch et al.

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5) In considering claim 31, Davies et al., Yoshizawa et al. and Balch et al. made obvious all of the claimed subject matter as in the consideration of claim 28.

5. **Claims 28-31** are rejected under 35 U.S.C. 103(a) as being unpatentable over Davies et al. in view of Yoshizawa et al. and Martinides (US pat #5,371,490).

1) In considering claim amended claims 28-30, Davies et al. and Yoshizawa et al. made obvious all of the claimed subject matter as in the consideration of claim 23, while:

-- Martinides teaches electronic article surveillance system components (Abstract and Fig. 1) not specified by Davies et al. and Yoshizawa et al., having the claimed electronic controller and plurality of antennas (4 and antennas in Fig. 1) and transmitter and receiver means operating in non-pulsed mode (Abstract and Fig. 1, wherein no pulsed mode operation was disclosed, making the system inherently non-pulsed), and the claimed first and second antennas selected by the controller to operate in respective transmit only and receive only modes are met by the sequential operation description of Fig. 1.

Davies et al. and Yoshizawa et al. teaches a marker interrogation system in which an antenna is used for interrogation and detection of a tag, without further specifying the interrogation/detection specifics including the number of antennas used and their control circuitry, while Martinides teaches using the claimed features in the control aspect of the interrogation/detection system. It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use the known control circuitry and multiple use of antennas such as taught by Martinides for the complete implementation of a marker interrogation/detection system such as that taught by Davies et al. and Yoshizawa et al. to cover multiple zones.

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3) In considering claim 31, Davies et al., Yoshizawa et al. and Martinides made obvious all of the claimed subject matter as in the consideration of claim 28.

Allowable Subject Matter

6. **Claim 4** is allowed

Response to Arguments

7. Applicant's arguments with respect to claims 12-32 have been considered but are deemed persuasive.

1) Applicant's arguments directed to claims 16-19 are moot in view of the new ground(s) of rejection. The obviousness rejection has been made to address a single difference between Davies et al. and the claimed invention, and clarifies the issues raised by Applicant.

2) Claims 23-25 and 32 correspond to cancelled claims 1-3, and 11. Regarding claims 12-15, 20-25 and 32, the above rejection has further clarified that the combination of Davies et al. and Yoshizawa et al. was made to minimize the antenna size using techniques/materials taught by Yoshizawa et al. for the EAS interrogation antenna of Davies, that is, the antenna size is minimized within the context of not changing the antenna's intended EAS interrogation function. Such a modification would have been obvious to one skilled in the art, as explained in detail in the above rejection. Furthermore, Claim 32 (cancelled claim 11) does not claim "minimizing the Q factor", but instead only a particular Q factor value. For the specifics of the rejection including motivation for combination, please refer to rejection above for detail.

3) Claims 26-29 and 31 correspond to cancelled claims 5-8 and 10, which are rejected under Davies et al. in view of Yoshizawa et al. and Balch et al., the details of the rejection as well as motivation for modification and reference combining are found in the above rejection.

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4) Claims 28-31 correspond to cancelled claims 7-10, which are rejected under Davies et al. in view of Yoshizawa et al. and Martinides, the details of the rejection as well as motivation for modification and reference combining are found in the above rejection.

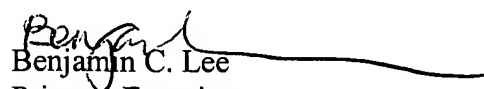
Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin C. Lee whose telephone number is (703) 306-4223.

The examiner can normally be reached on Mon -Fri 11:00Am-7:30Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Wu can be reached on (703) 308-6730. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Benjamin C. Lee
Primary Examiner
Art Unit 2632

B.L.
5/31/04